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THE ARCHITECT

VOLUME XII · NUMBER 3
SEPTEMBER · 1916

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Vol. XII. No. 3

THE ARCHITECT

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¶ Changes in, or copy for new advertisements, must reach the office of publication not later than the fifteenth of the month preceding issue. Advertising rates and any other information will gladly be given on application.

¶ The editor will be pleased to consider contributions of interest to the profession. When payment for same is desired, this fact should be stated. E. D. McDonald, Northwest Representative, 4100 Arcade Building, Seattle, Washington.

BELFRY AT BRUGES, BELGIUM

THE ARCHITECT

VOL. XII. SAN FRANCISCO, SEPTEMBER, 1916 NO. 3

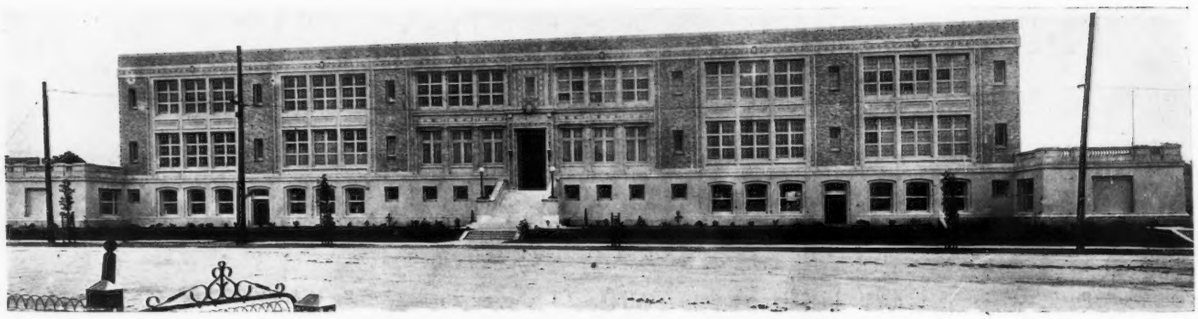
Solving Artistic Problems of City Building.

CITY planning is the next big step which all municipalities must take. The more progressive cities have already grappled with this problem with achievements of marked success. Other communities are now engaged in the promotion of town-planning projects and the awakening of all communities to the necessity of properly providing for future development is slowly, but surely, taking place.

The advantages of co-ordination of all activities that make for satisfactory results are being made known to the general public in diverse manners. Municipalities have invited men of wide practical experience and scientific training to investigate conditions in their community and to make suggestions for improvements, and in this manner extension of the city-planning idea is being made.

View Across Lake Merritt Looking Towards Oakland City Hall. Palmer, Hornbostel and Jones, Architects. John J. Donovan, Supervising Architect.

The city of Oakland, California, as well as its sister city, Berkeley, has been in the vanguard of communities striving for civic progress. These cities have co-operated in an extensive beautification plan with

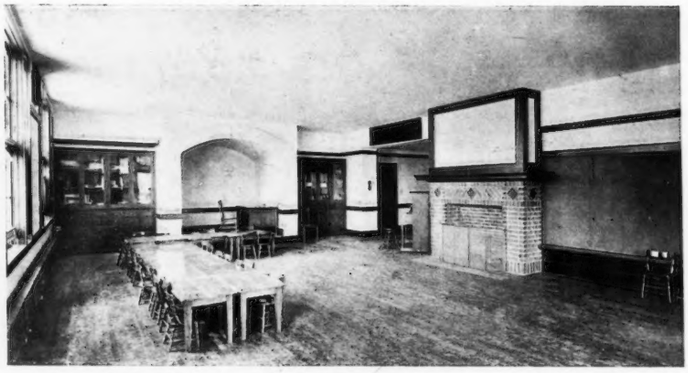


Front Elevation Clawson School, Oakland, Cal. John J. Donovan, Architect.

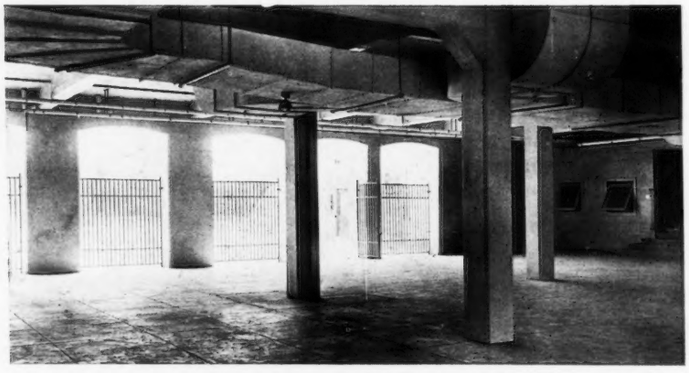
due consideration of comprehensive projects for the improvement and future development of transportation and industry.

While it may be too early to speak about accomplishments in city planning as related to American municipalities — until recent years notoriously backward in giving proper attention to the idea — the city of Oakland, however, comes to the fore as a municipality that has made growth in solving artistic problems of city building, in a surprising fashion.

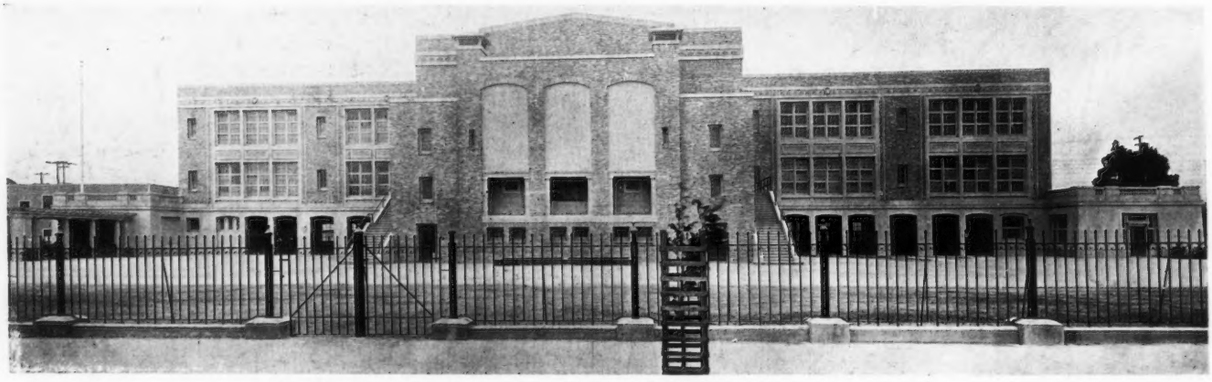
Oaklanders may point with pride to the well-balanced and complete scheme of landscape coincident with the preservation of the natural charm of Lake Merritt. F. L. Olmsted, the well-known landscape engineer, has stated that "the desideratum of a residence next in importance will be points in the neighborhood of which there are scenes, either local or distant, either natural or artificial, calculated to draw women out of their houses or private grounds, or it will at least form apparent objects before them when they go out. It will be all the better if many are likely to resort to these points and they thus become social rendezvous of the neighborhood; and that next to points at some distance from a house



Kindergarten Clawson School, Oakland, Cal. John J. Donovan, Architect.



Girls' Play Room, Ground Floor, Clawson School, Oakland, Cal. John J. Donovan, Architect.



Rear Elevation on Magnolia Street, Clawson School, Oakland, Cal. John J. Donovan, Architect.

Embarcodero at End of Lake Merritt. Walter D. Reed, Architect.

commanding beautiful views, it is desirable to be able to look out from the house itself upon some interesting distant scene."

This idea surely has been achieved by the city of Oakland in the development and preservation of natural beauties of Lake Merritt and the development of Lake Merritt Park. Thanks to the taste of the designers, this locality offers one of the most picturesque scenes. Convenient of access, it serves wide recreative purposes and affords an unrivaled and charming vista for many householders residing on adjacent and elevated properties. It has for its background the romantic setting afforded by the Berkeley foothills.

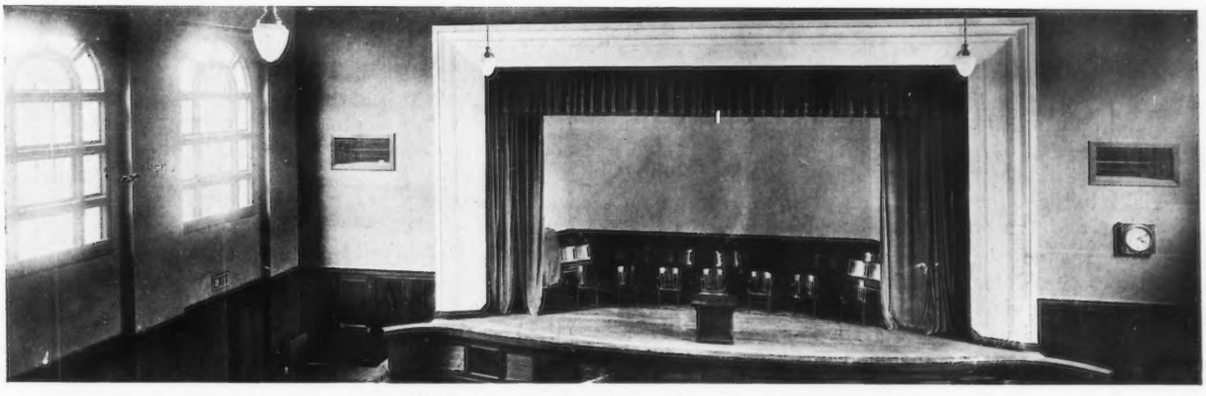
Corridor Clawson School, Oakland, Cal. John J. Donovan, Architect.

Class Room, Clawson School, Oakland, Cal. John J. Donovan, Architect.

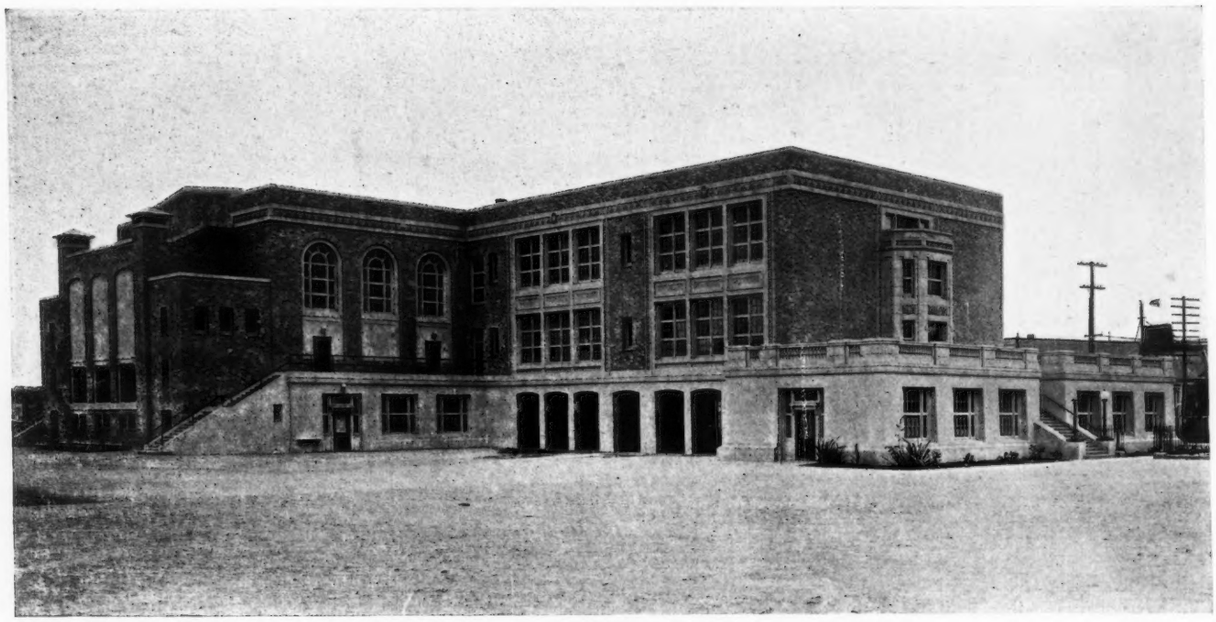
The undertaking for the development of this property was of considerable magnitude, but the happy results achieved more than compensate for the effort and have served as an incentive to even greater enthusiasm for civic art and beauty.

Much good has been accomplished through the report of Dr. Werner Hegemann, city planner and secretary of the Committee for the Architectural Development of Greater Berlin and General Secretary of the City Planning Exhibitions of Berlin and Duessedorff and Director of the Division of City Planning of the

(Continued on page 194)



Stage in Assembly Hall, Clawson School, Oakland, Cal. John J. Donovan, Architect.



Northeast Corner Clawson School, Oakland, Cal. John J. Donovan, Architect.

The Clawson School.

By JOHN J. DONOVAN.

THE new Clawson School is a good example of what a large central grammar school should contain. Fortunately, it is located on a level lot of land which is bounded by streets permitting the best orientation, as the class rooms have east and west light for natural lighting. A glance at the photographs of the class rooms will show how completely the rooms may be converted into open-air rooms. To assist the natural ventilation there are also transoms on the opposite side of the class rooms opening into the corridors, which permit free circulation of air.

On the ground floor, which we have termed the "basement," although it is six inches above finish grade, are the open-air play rooms, one for boys and one for girls, which are a feature of this floor plan. These play rooms are enclosed on three sides and entirely open on the east side and are likely to be used in the future as gymnasia. Besides the play rooms, the ground floor contains the domestic science room, cafeteria, domestic arts room, kindergarten, community club room, manual training room, boys' and girls' toilet rooms, boys' and girls' shower rooms and boiler and fan rooms.

Due to the collaboration of the home economics supervisor, the domestic science and domestic arts rooms are particularly good examples of rooms for this departmental work. Not a single detail has been neglected, from the gas meter, which measures the quantity of gas used in the experiment, to the flour bins in the closet. It will be noticed in the grouping of the domestic science plan that the teachers' dining room, cafeteria, kitchen, pantry, and the domestic science dining room are grouped around the domestic science room.

The kindergarten is probably more interesting than any other part of the building, for it contains, within the room itself, a fine large fireplace around which interesting Christmas tales may be told and which will give cheer and a sense of comfort to the room, although the room is thoroughly ventilated and well heated. At one end of the long axis of the room is a small stage where the little tots may recite nursery rhymes and get their first impression of facing an audience. To the east and on the outside of this room is a covered porch with flower boxes between the columns. It is here where the youngsters play on warm, balmy days, and the play may be extended into the play yard, which is only a few inches lower than the level of the porch. In a few years the plants and shrubs surrounding the porch will have attained sufficient growth and this end of the school building will have every appearance of an inviting summer house, which is just the right impression to convey to children on their first visit to the school.

On the first floor above the ground floor, there are, beside the class rooms, the assembly hall, principal's suite, the library, and teachers' rest room. At first the assembly hall was planned to serve as a gymnasium as well as an assembly room, but the open-air play rooms in the basement will answer every purpose

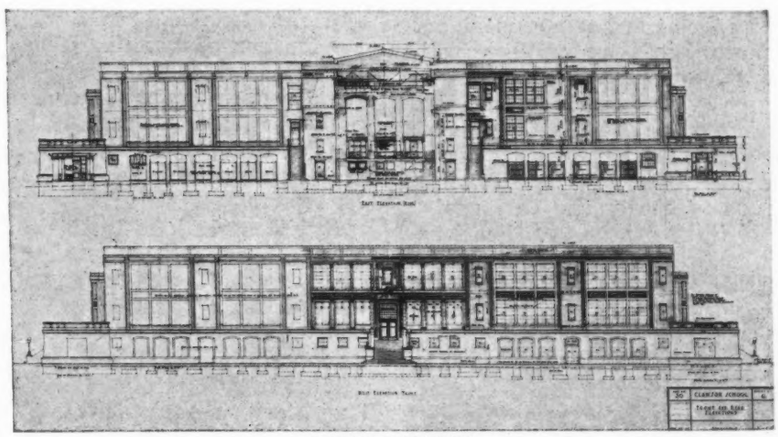
for gymnasia. However, the arrangement for the assembly hall is such as to permit a wide use of this room. It is quite convenient to the play yard, also to the showers on the ground floor, and by the way, these showers are also adjacent to the play yard, and it is the policy of the Board of Education to give to the larger children and men and women the use of these showers.

Above the wainscot of the assembly hall have been applied acoustical felt and burlap, and I feel quite safe in saying that the acoustics of this room need no correction, and my experience in school work leads me to advise that all assembly halls should be treated somewhat in this manner if they are to be used successfully.

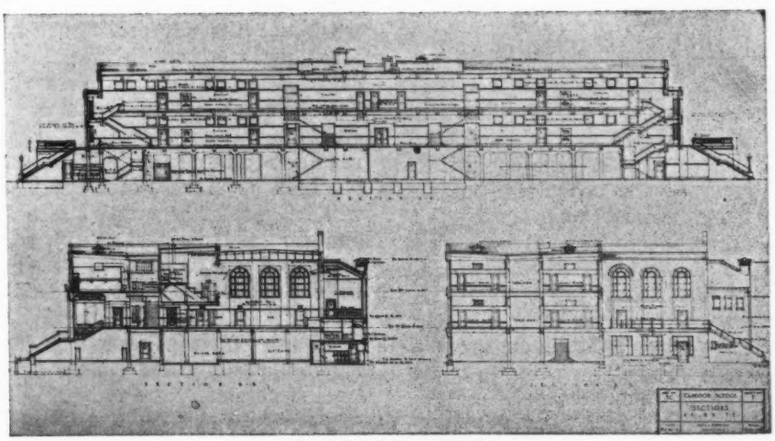
Much care was given to placing the moving picture booth so that the picture rays would strike the canvas at the proper angles, another matter to which attention must be given in designing school assembly halls when moving picture booths are installed.

Structurally, the building is of reinforced concrete, that is, reinforced-concrete frame with reinforced-concrete floor slabs throughout, including the roof slabs. The first story has reinforced-concrete exterior walls with plaster surfaces. Above that, mottled buff brick, varying in color, and decorative architectural terra cotta have been used on the exterior of the building. These brick walls are somewhat interesting in their texture. There were seven or eight colors used haphazardly in the laying of the bricks, purposely avoiding preponderance of any one color. This haphazardly mixing of selected colors has given to the brickwork a rather pleasing tapestry effect. And these panels of brickwork have been trimmed with flatly glazed architectural terra cotta of a graystone and mottled texture which harmonizes quite well with the brickwork. A feature of the design of the exterior is that of making use of the reinforced-concrete piers between the windows, which are structural piers as well as a part of the composition. Fortunately we have been able to use good permanent materials in this building, and somehow or other it shows it. Every consideration has been given to the heating, ventilating, plumbing and electrical problems of the building, and rightly such consideration should be given to this equipment of a school building.

The building cost $161,943.74, which includes all fees in connection with the work. There was a sufficient balance in the appropriation to enable us to properly treat the grounds, including the planting in front and sides and the playground at the rear and sides. And I wish at this time to thank Prof. John W. Gregg, of the Horticultural Department of the University of California, for his collaboration on the layout and placing of the shrubs. And it seems to me that this practice of completing the building by surrounding it with properly arranged lawns, walks, and the planting of good shrubbery will mean a great deal towards instilling interest and admiration for school work. As a matter of fact, we cannot consider our work completed until the landscape work has been studied and executed. Dr. David Spence Hill, of the Bureau of Educational Research of New Orleans, on visiting the building, remarked that he "had not seen a better grammar school building anywhere in the United States."



SECTIONAL DRAWING



FRONT AND REAR ELEVATION

Clawson School, Oakland Cal. John J. Donovan, Architect.

The Editor has suggested that in closing the description of the Clawson School, something further be said regarding school architecture in general, and I am only too happy to add my small mite and advice, based on experience, if it will throw any light on the subject or if it will contribute in any way towards improving conditions under which the architect works and

by which better schools may result. It is not at all difficult to appeal to the educator, who is generally a man or woman of high ideals. Therefore, I do appeal to educators who may have control over the building of schools, and point out that the great future of America's most important institution, namely, education, will be beneficially influenced largely by promoting a spirit for good architecture in their work and encouraging that same spirit in the work of the architects who are fortunately commissioned to perform this work.

I believe I can safely say that the school man leads the architect and it is but natural that it should be so, because he has the problem to solve, whether well or otherwise, long before it reaches the latter, and the leader in school administration is ever seeking for the ideal arrangement, plan or detail which will facilitate and make for efficiency, the work of the teacher. And as the ideas come from within the teaching force, so, too, should the spirit and desire for good, sound, simple, pleasing, truthful architecture come from the teacher himself or herself.

Now in order that this may be more tangible to discuss and speak of, concrete examples furnish the best light for understanding. To begin with, every school is a separate and distinct school architectural problem in itself to be solved following the basic principles and rules of school design and arrangement, but solved upon and by the merits of the prevailing conditions surrounding the problem. This is not alone true in architecture; it is true in every other walk of life, and therefore is an axiom which is taken for granted and does not require proof. Therefore, isn't it wrong or rather isn't it dodging the problem by repeating here and there the same type over and over again, with the wonderful possibilities for charm and variety, due to the different climatic and temperature conditions which prevail in the different sections of our State and our country.

On account of the intense heat in some sections and the temperately cool climate in other sections, isn't it reasonable to suppose that there would be a difference in the architecture for the schools in these different localities? Isn't that true in domestic architecture? In countries of high temperature, the native seeks to house himself and his family in airy dwellings lightly built with long, overhanging eaves and shelters creating shadows and avoiding hot sunshine whenever it is possible. Isn't the reverse true in countries where the sun is concealed most of the day and frigid weather and snows prevail? Therefore, aren't the conditions surrounding the architecture of a school similar in nearly all respects to the conditions surrounding the dwellings of man? There can be but one answer, and that in the affirmative.

Now, in consequence of that, the architect should be encouraged to exercise his skill to meet these climatic conditions in his architecture, and it is the encouragement from the school man which will help him to solve the problems connected with school work correctly from the school man's point of view and also from a good architectural viewpoint.

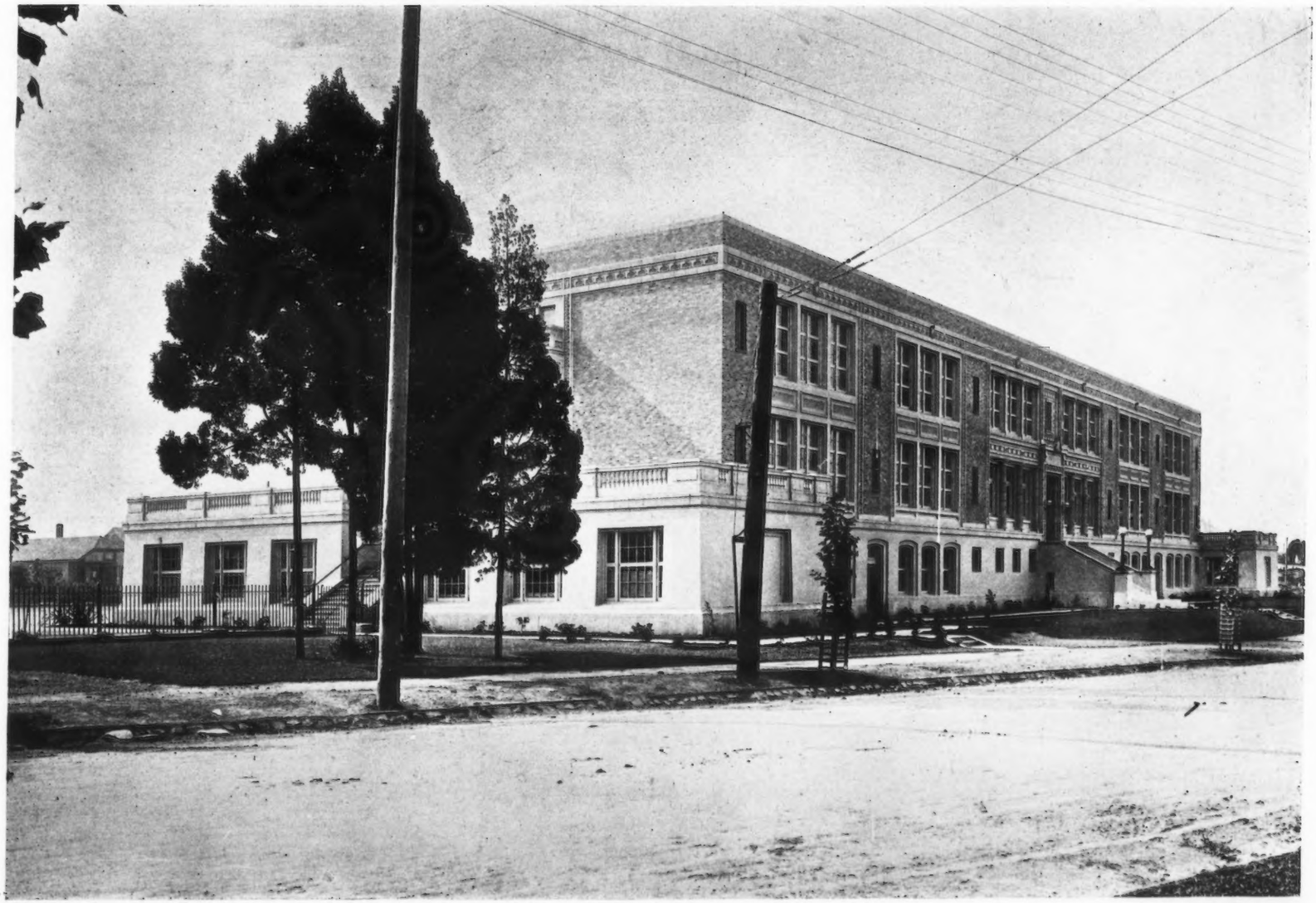
And he who does not study his problems with such ideals in mind and repeats here and there and everywhere the same type over and over again, disregarding the wonderful possibilities that lie before him, must necessarily fail to achieve the success which is the greatest success of all—that of a good name.

This might be called the first stage of promoting a good spirit for good architecture. The next and all-important is the encouragement towards the use of good, sound, natural and permanent materials in the execution of the work. How often has a good design been spoiled by the use of temporary and inferior materials. A poor design will often give satisfaction if the structure is well built of good materials. For good materials have a character and a standing just as the individual has or has not character and standing. And inasmuch as most of our school work is built under bond issues of periods from twenty to forty years, isn't it a fair assumption that at the expiration of the bond issue, when the building has just been paid for, that it should be in a state of preservation? As a matter of fact, while the community has purchased and made the improvement on the installment plan and has had the use of it during the period of the bond issue, it is to be expected that the building shall be safe and sound long after it has been paid for. Now this cannot be realized if poor material and poor workmanship are used in the construction of a work. If good materials are used and good workmanship applied to those materials, there can be no question about the future of that improvement. And right here it is to be strongly recommended that public bodies aid in the preservation of their improvements by providing a small upkeep fund for repairs.

It will not be hard to obtain the very best in both architecture and in construction, if in nearly all cases our Boards of Education and other civic offices adopt the measure of correctly determining the cost of a building or an improvement before the appropriation is made.

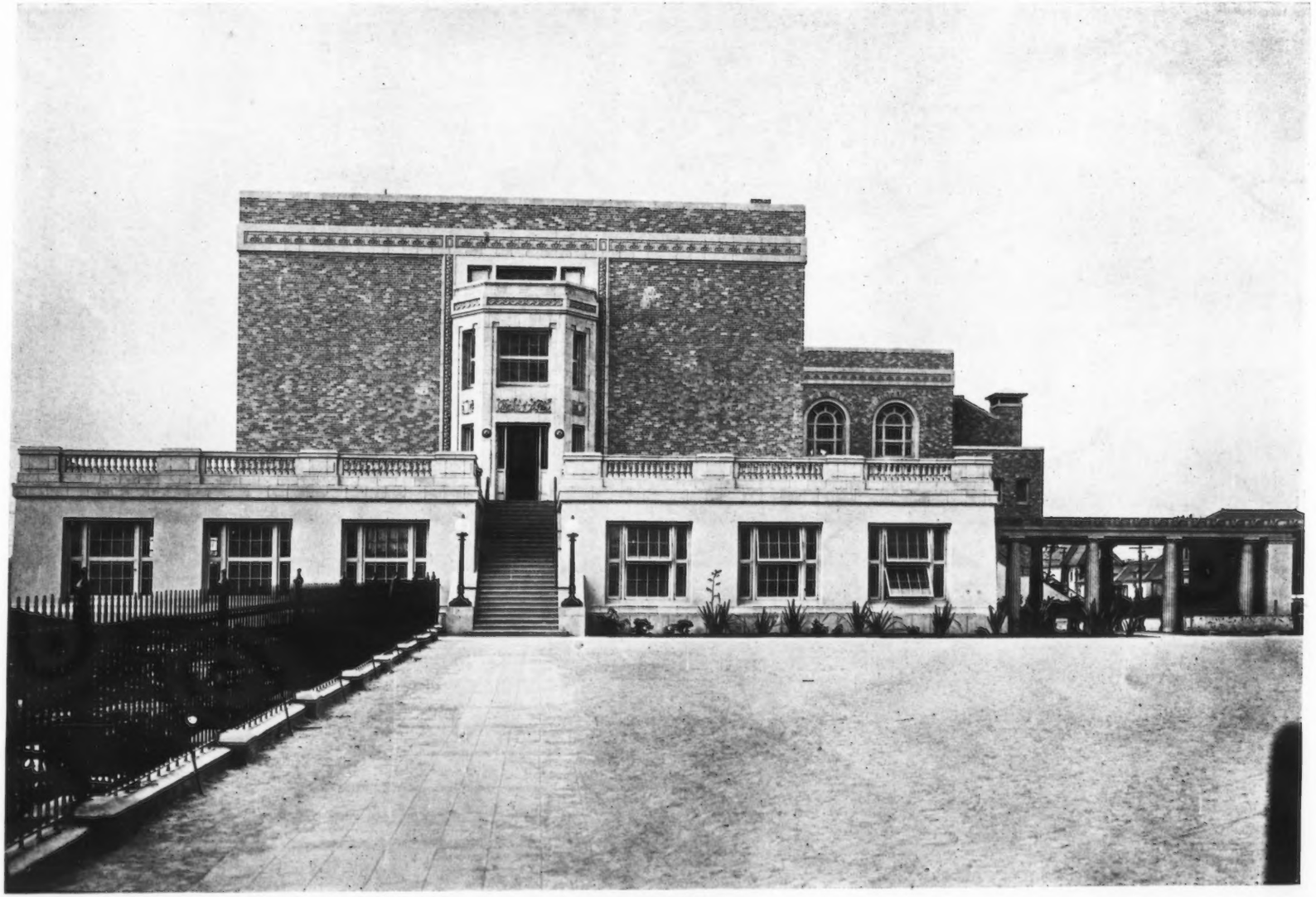
If we take, for instance, any locality that may contemplate a new school building and the Board of Education call in an experienced, competent architect and make known to him their requirements and let him work out the problem for them in its preliminary stage, and work out this problem to such a finish that a careful, accurate estimate may be had, not alone from the architect, but from one or more responsible contractors. Then with this knowledge of the amount required to build the building, and further knowledge obtained as to cost of furnishing the building, there will be greater progress made in school architecture and greater happiness all around. It means the elimination of the substitution of inferior materials. It will mean the elimination of cutting down on this room, cutting out this and that requirement, and it will mean aiding and facilitating the proper management of the school, not only for the administrator, but for the teacher as well.

The relations between client and architect are the same as between patient and doctor, client and attorney.



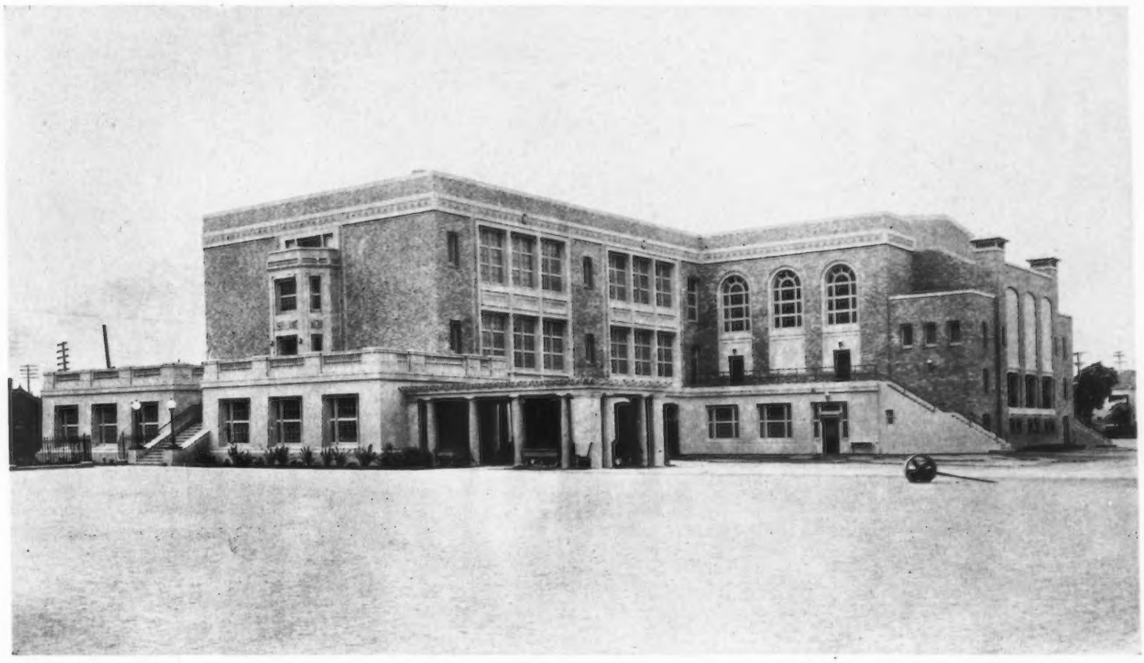
NORTHWEST CORNER

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

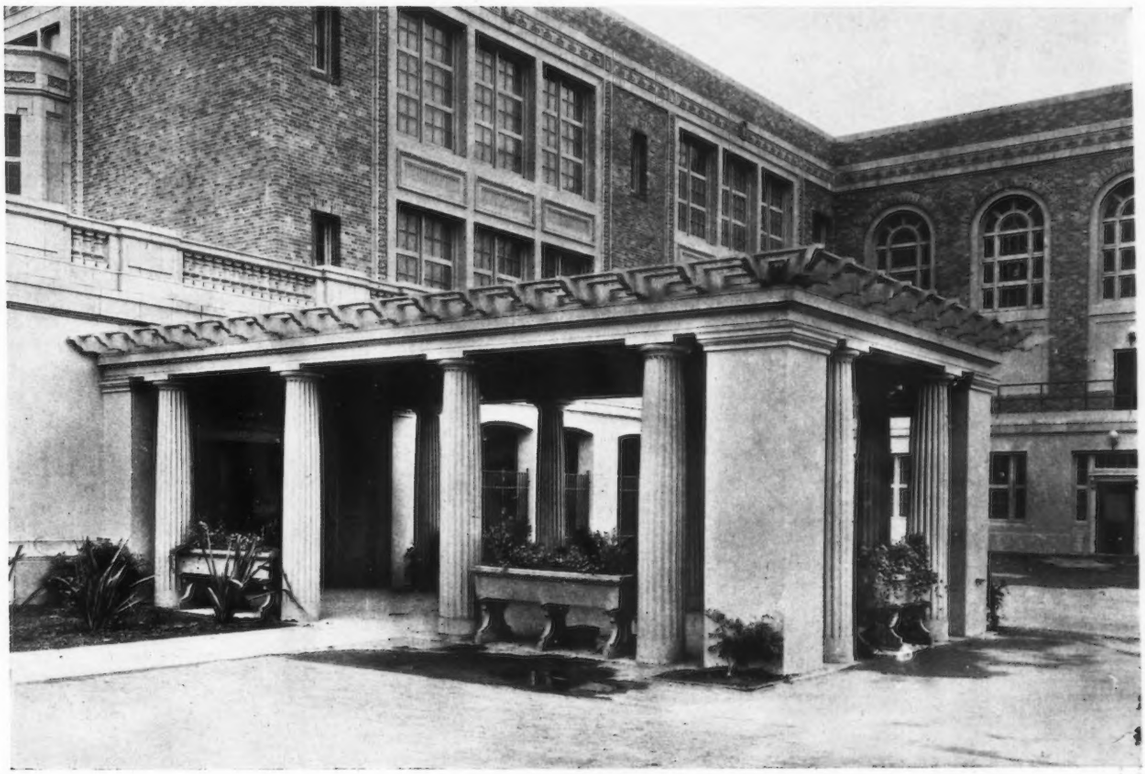


SOUTH ELEVATION

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

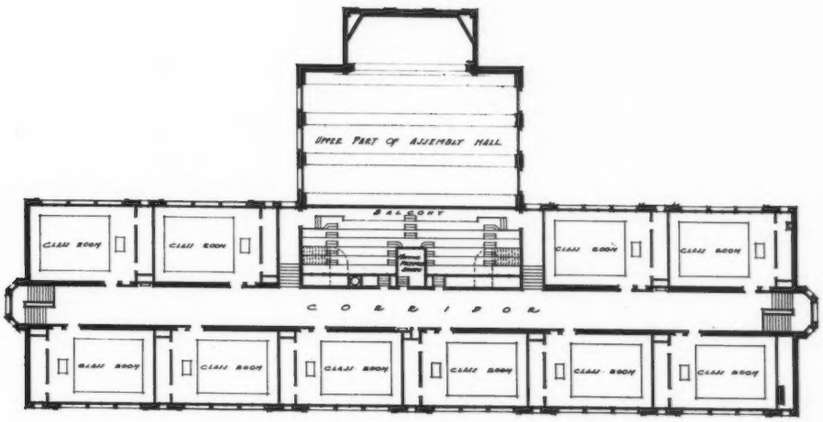


SOUTHEAST CORNER

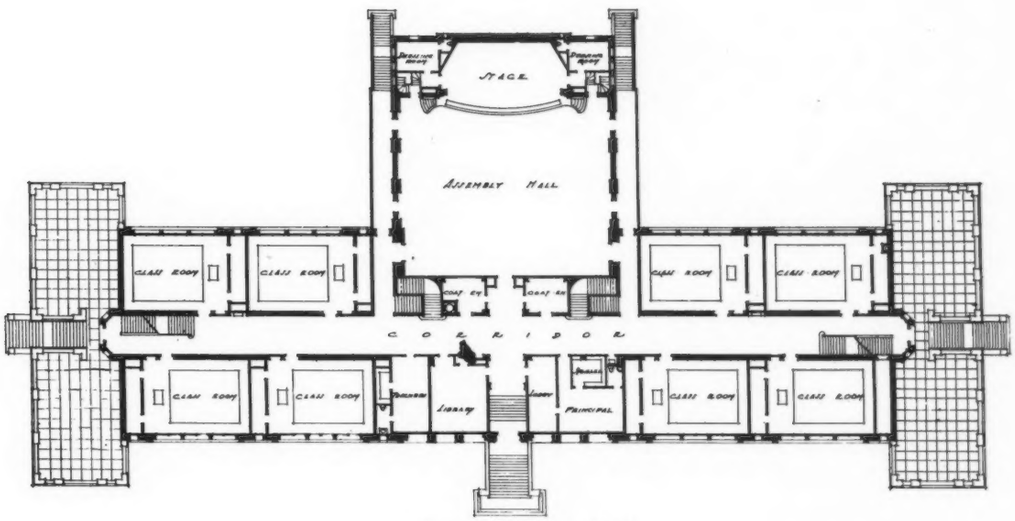


KINDERGARTEN PORCH

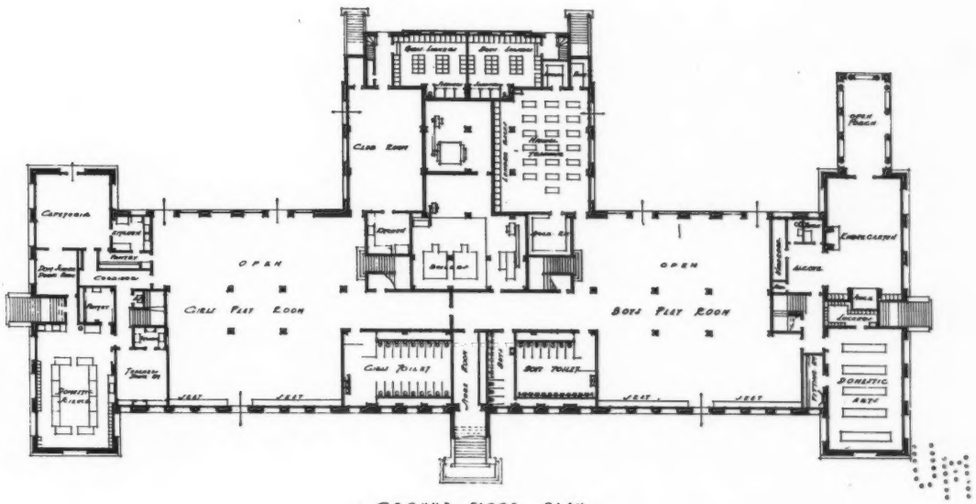
CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. BONOVAN, ARCHITECT



SECOND FLOOR PLAN.



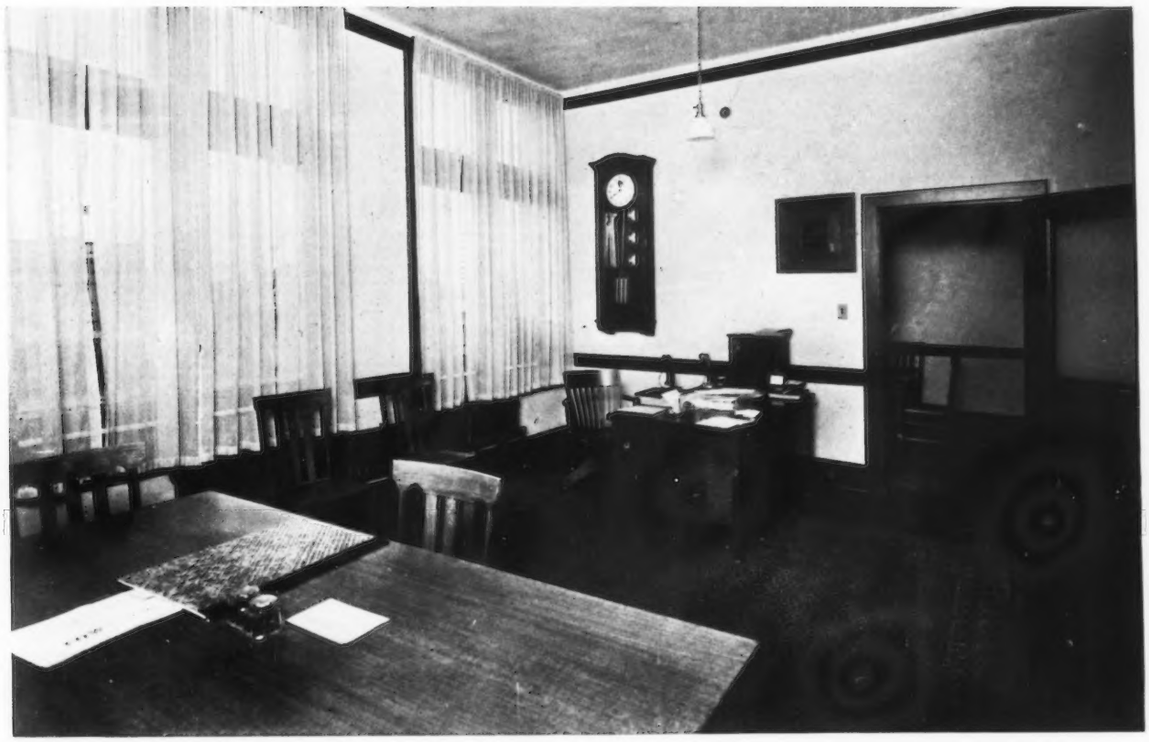
FIRST FLOOR PLAN



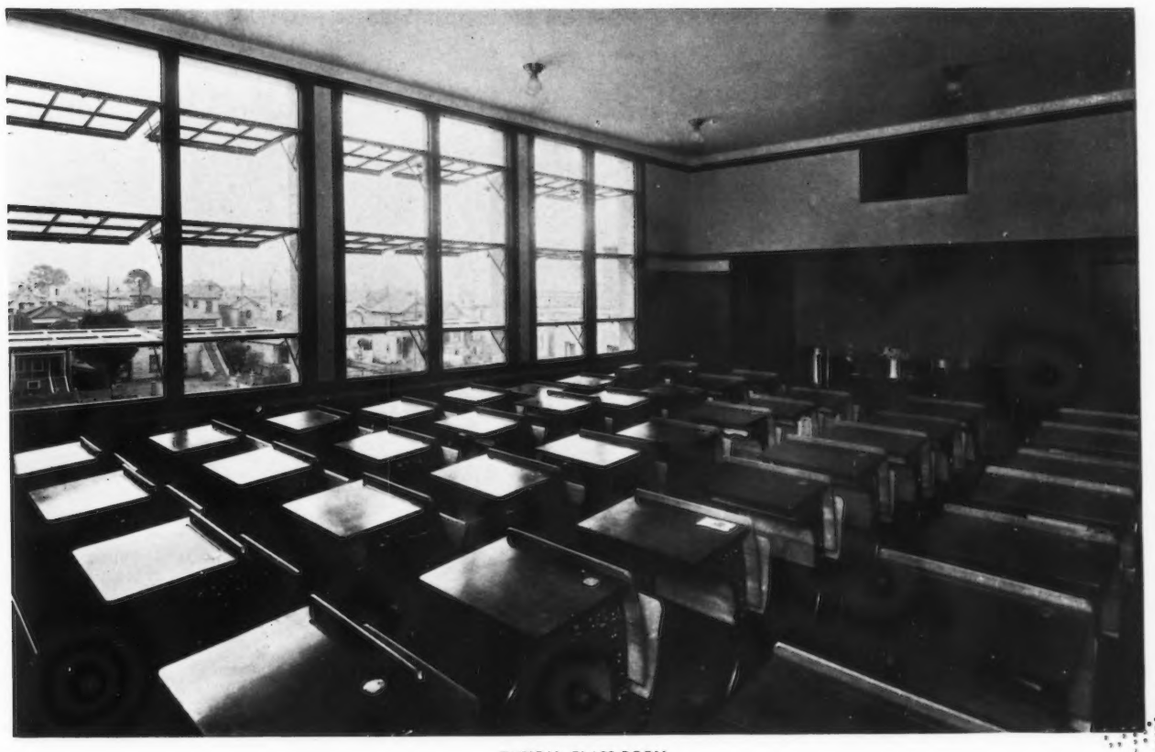
GROUND FLOOR PLAN
SCALE 1/8 INCH TO ONE FOOT

FLOOR PLANS

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN. ARCHITECT



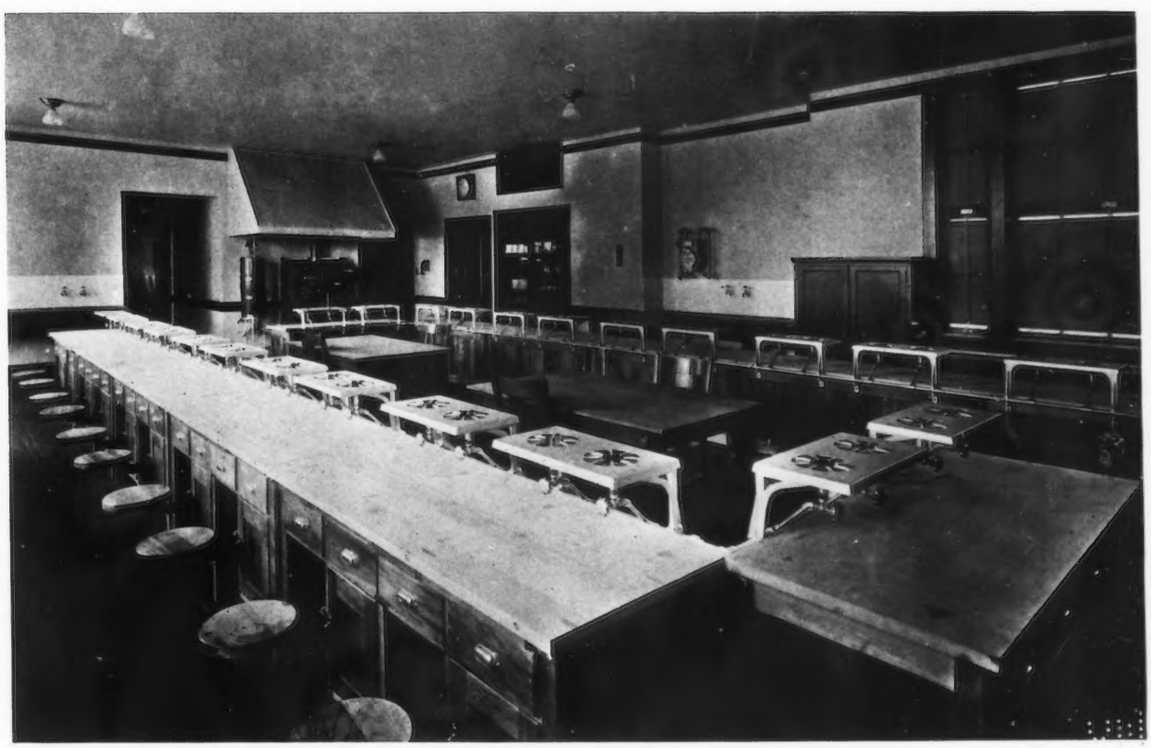
PRINCIPAL'S OFFICE



TYPICAL CLASS ROOM

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

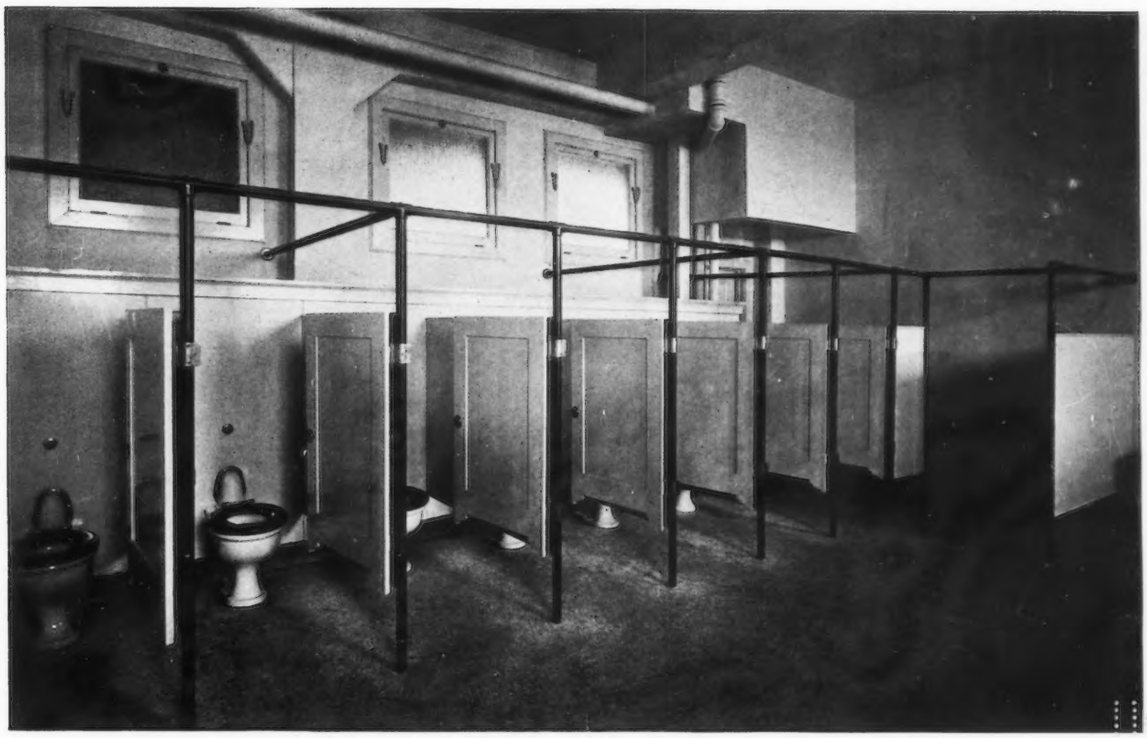
MANUAL TRAINING ROOM



DOMESTIC SCIENCE ROOM

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

URINAL STALLS



BOYS' TOILET ROOM

CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

OFFICE BUILDINC FOR SOUTHERN PACIFIC CO., SAN FRANCISCO

BLISS & FAVILLE, ARCHITECTS

DETAIL FRON ELEVAT

OFFICE BUILDING FOR. SOUTHERN PACIF

BLISS & FAVILLE ARCHIT

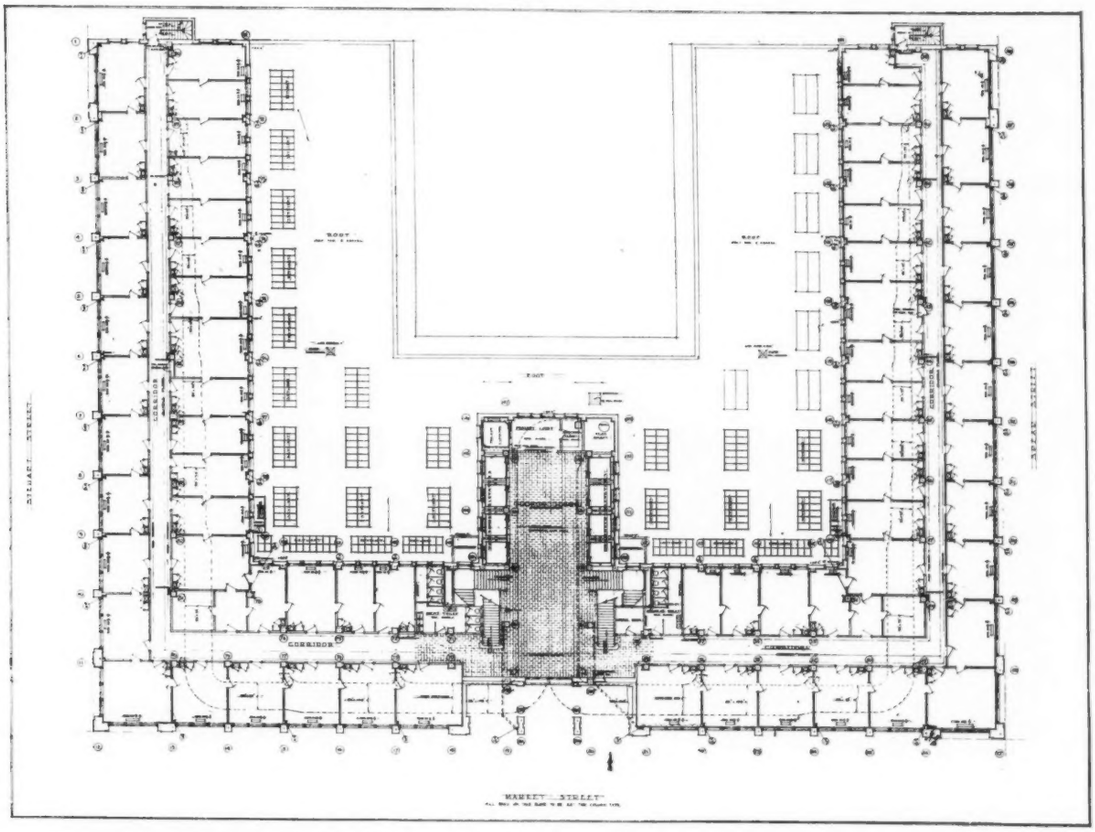
SOUTHERN PACIFIC COMPANY
HALF LOOKING TOWARDS STREET
HALF LOOKING TOWARDS LOBBY
LONGITUDINAL SECTION THRO· MAIN ENTRANCE VESTIBULE·
SECTION THRO· MAIN ENTRANCE VESTIBULE
SECTION THRO· WALL AT SIDE OF CLOCK
EXTERIOR ELEVATION OF MAIN ENTRANCE VESTIBULE
ELEVATION OF BALCONY AT SIXTH FLOOR·
ONE HALF PLAN OF BALCONY SOFFIT 6TH FL
ONE HALF PLAN OF MAIN ENTRANCE VESTIBULE
SIDE ELEVATION SECTION
MALL DOORWAYS IN MAIN ENTRANCE VESTIBULE

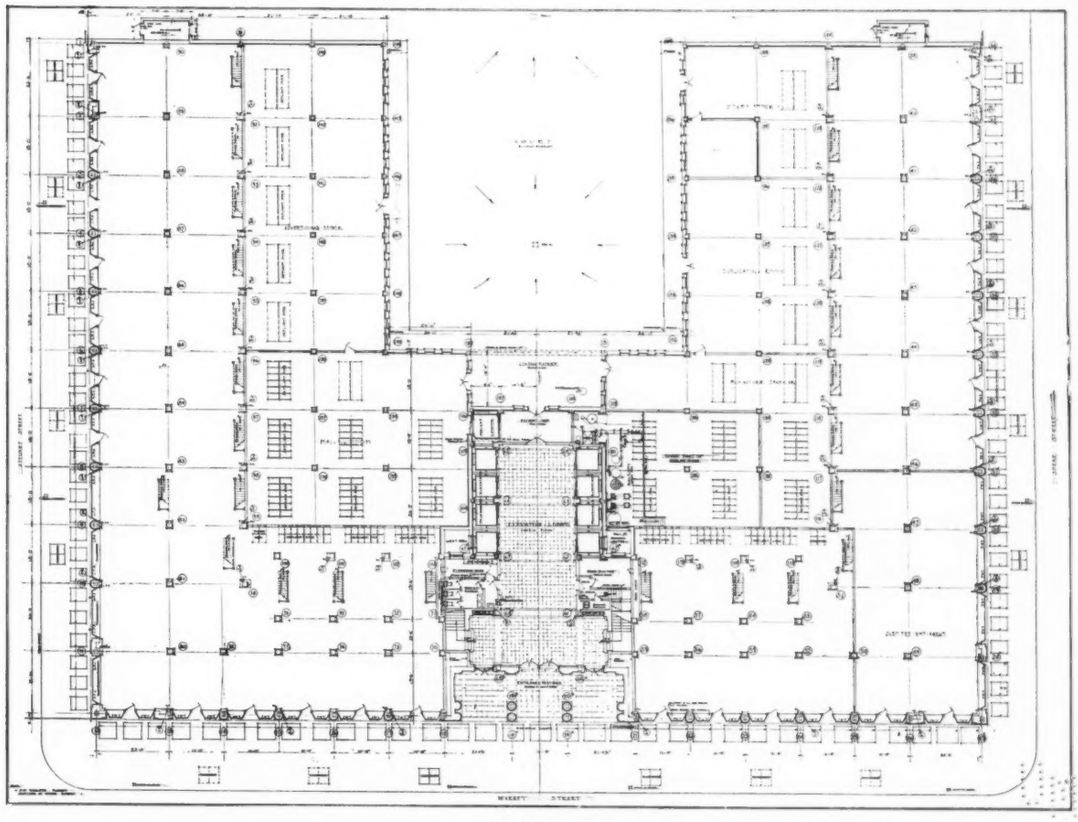
ETAIL FRONT ELEVATION

. SOUTHERN PACIFIC CO., SAN FRANCISCO

SS & FAVILLE ARCHITECTS

PLATE 41

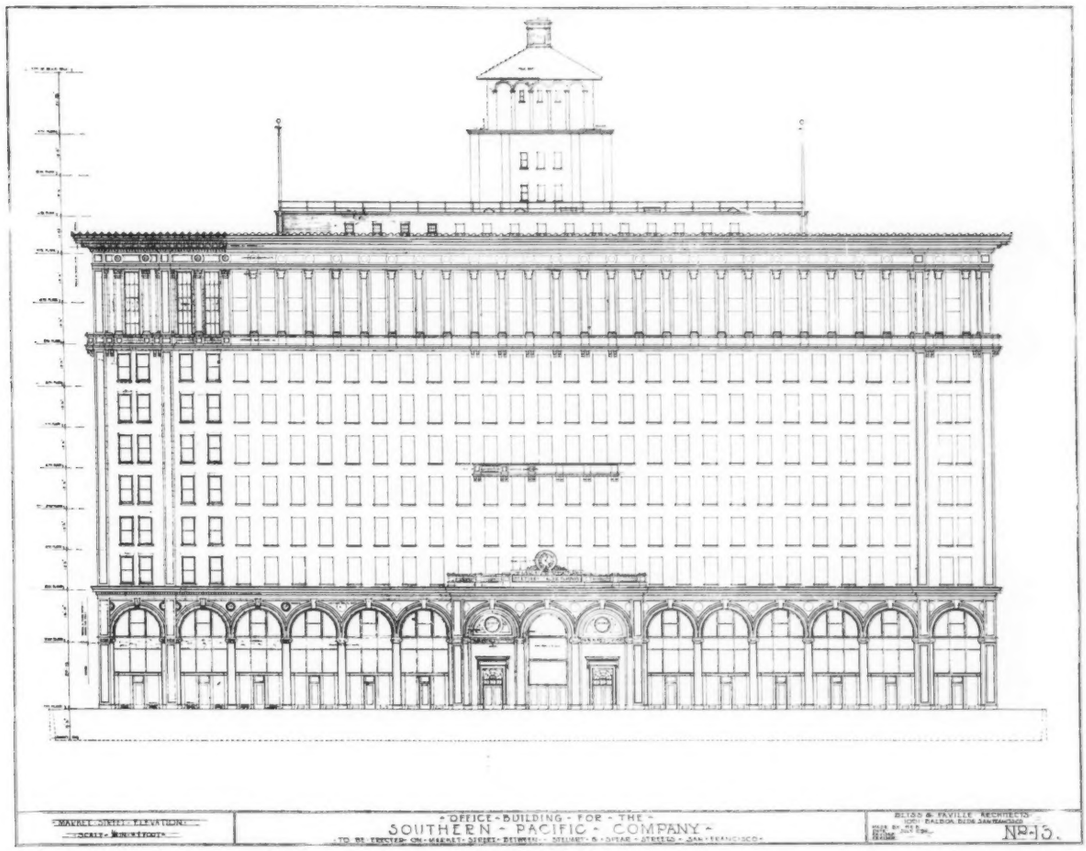




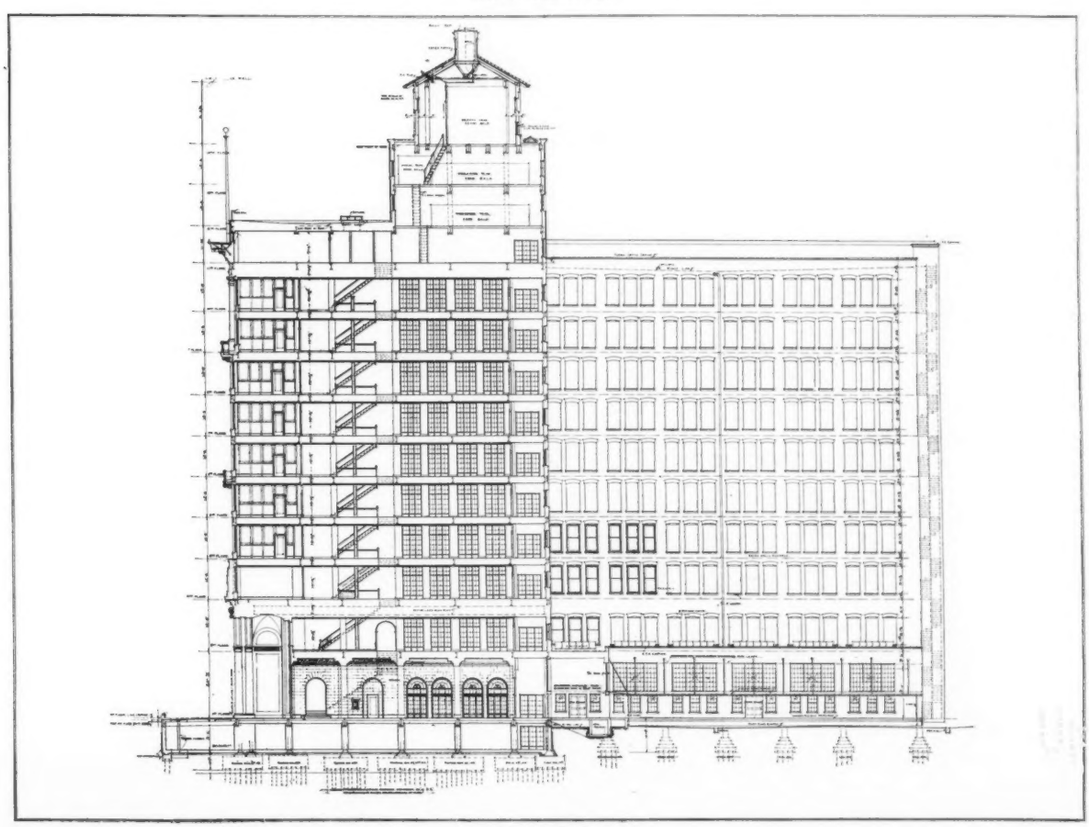
FLOOR PLANS

OFFICE BUILDING FOR SOUTHERN PACIFIC CO., SAN FRANCISCO

BLISS & FAVILLE, ARCHITECTS



FRONT ELEVATION

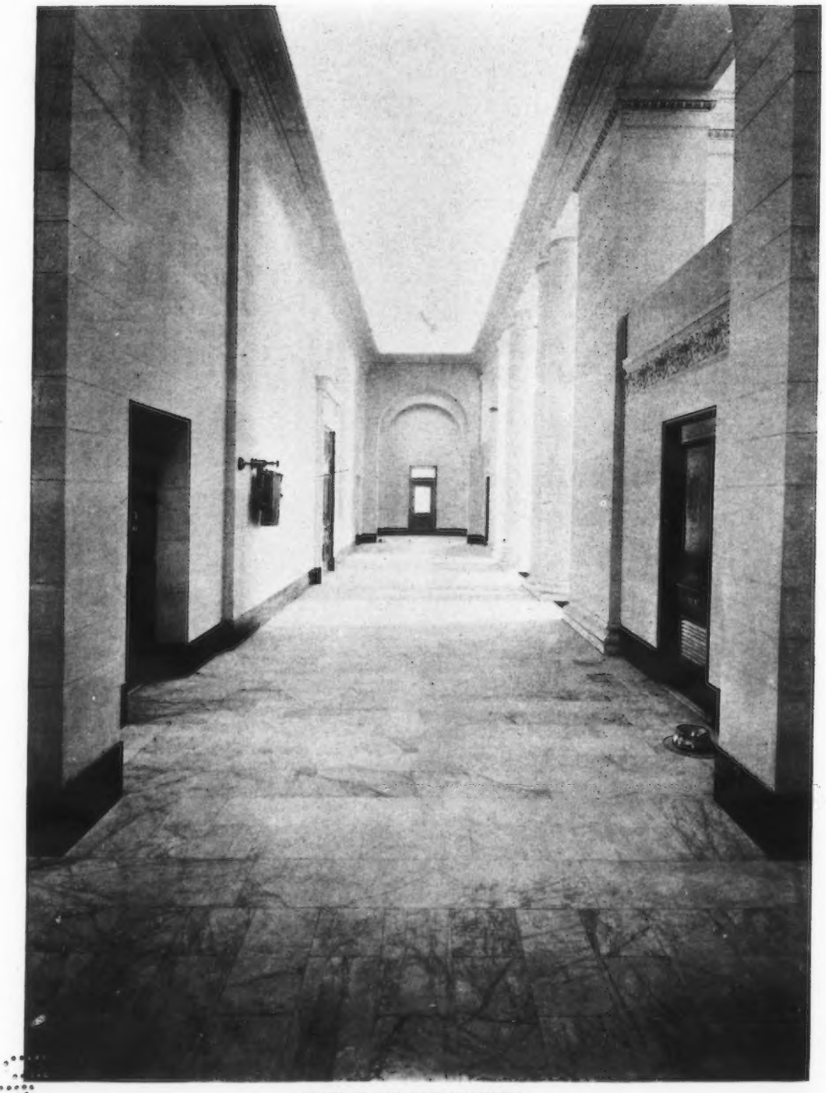


CROSS SECTION

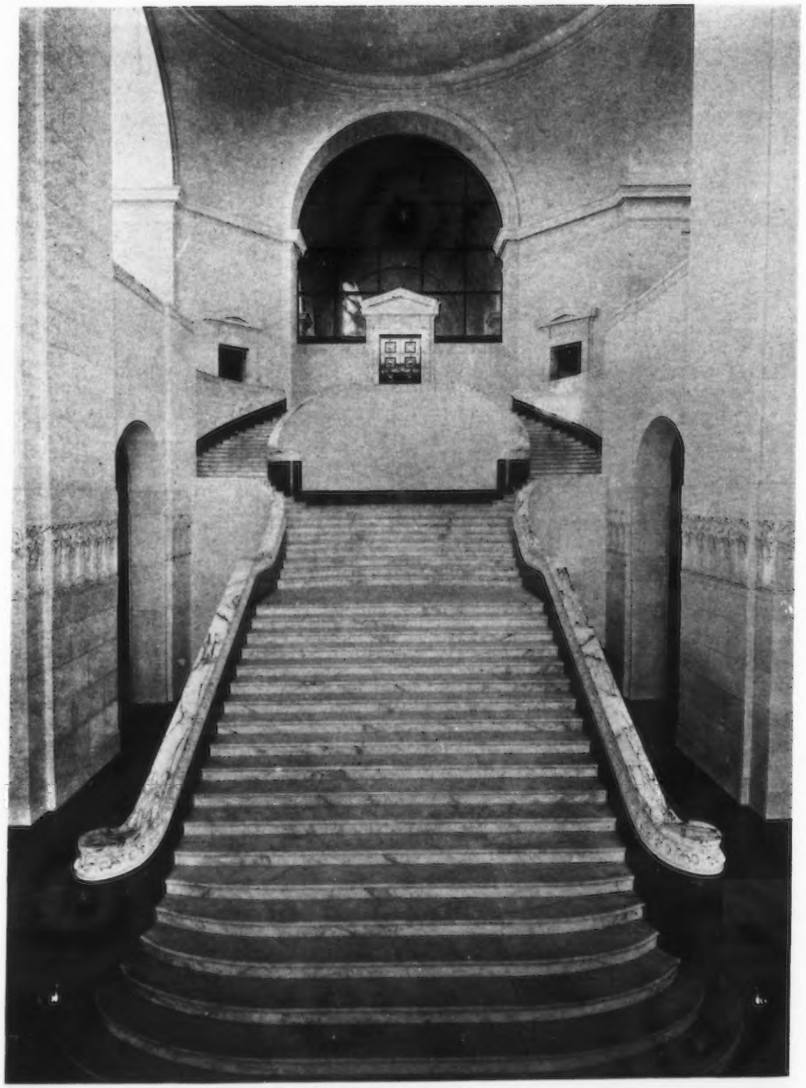
OFFICE BUILDING FOR SOUTHERN PACIFIC CO., SAN FRANCISCO
BLISS & FAVILLE, ARCHITECTS

CITY HALL, OAKLAND, CALIFORNIA

PALMER, HORNBOSTEL AND JONES, ARCHITECTS JOHN J. DONOVAN, SUPERVISING ARCHITECT



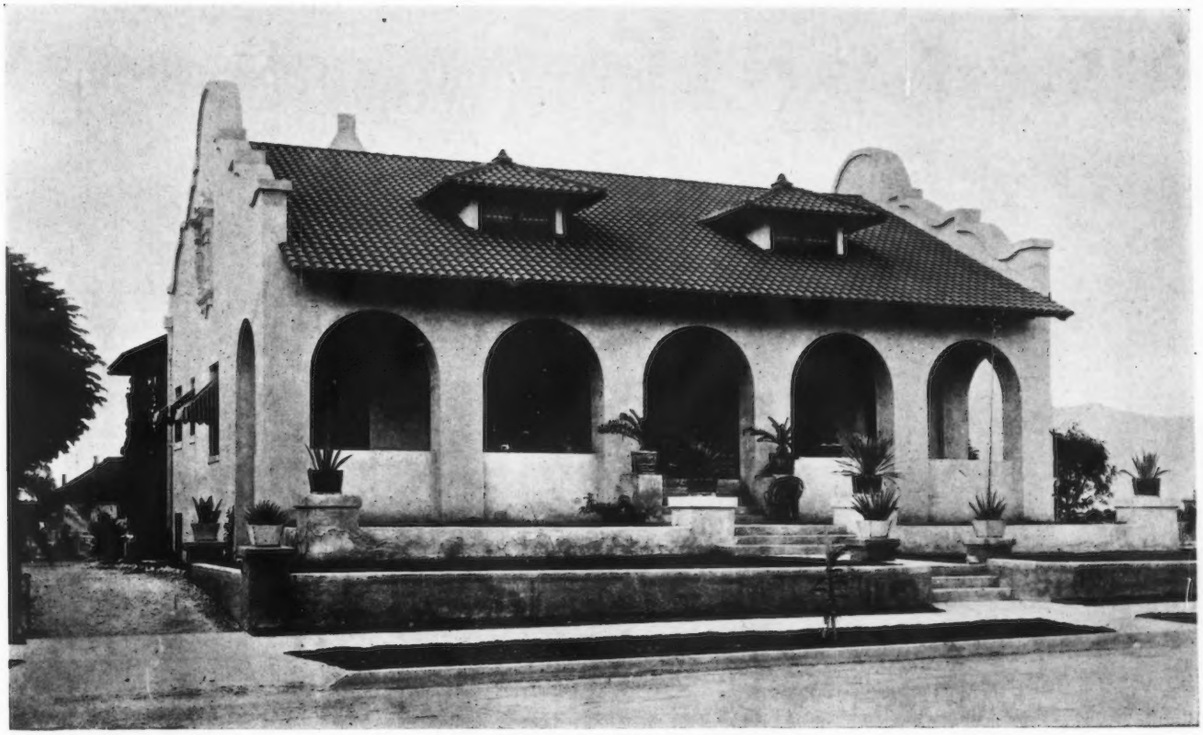
THIRD FLOOR SIDE CORRIDOR



ROTUNDA STAIRWAY

CITY HALL, OAKLAND, CAL.

PALMER, HORNBOSTEL AND JONES, ARCHITECTS JOHN J. DONOVAN, SUPERVISING ARCHITECT



BAYLESS RESIDENCE, TUCSON, ARIZONA

BAYLESS RESIDENCE, TUCSON, ARIZONA

STEINFELD RESIDENCE, TUCSON, ARIZONA

TROST & TROST, ARCHITECTS, EL PASO, TEXAS

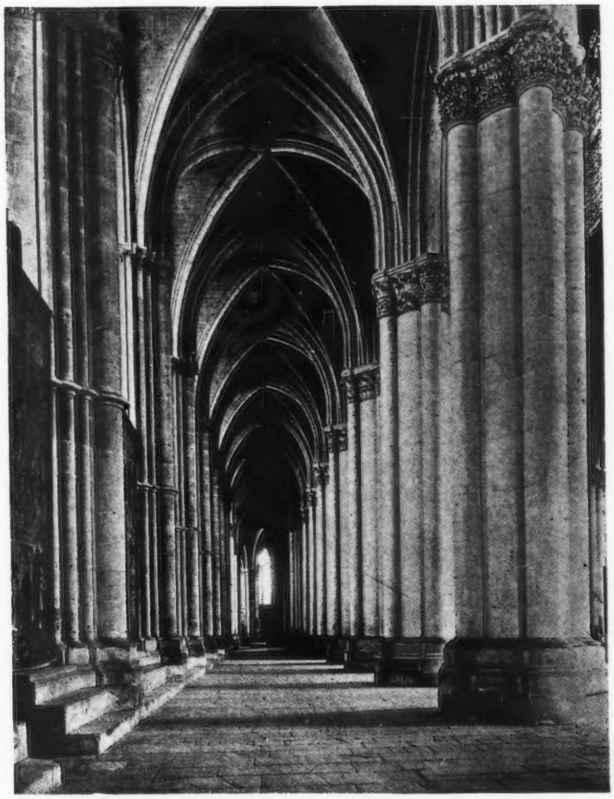
REVIEW OF OUR FOREIGN CONTEMPORARIES.

"THE ARCHITECTURAL REVIEW," London.

H. H. Martyn & Company, Sculptors

Beauvais Cathedral

Kellock Brown, R. B. S. Sculptor

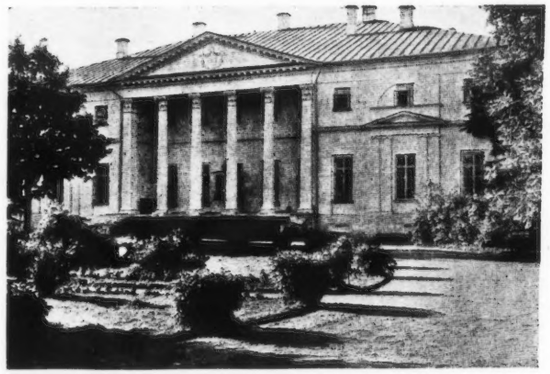


Reims Cathedral, Reims

Cathedral Church of St. Martin, Ypres

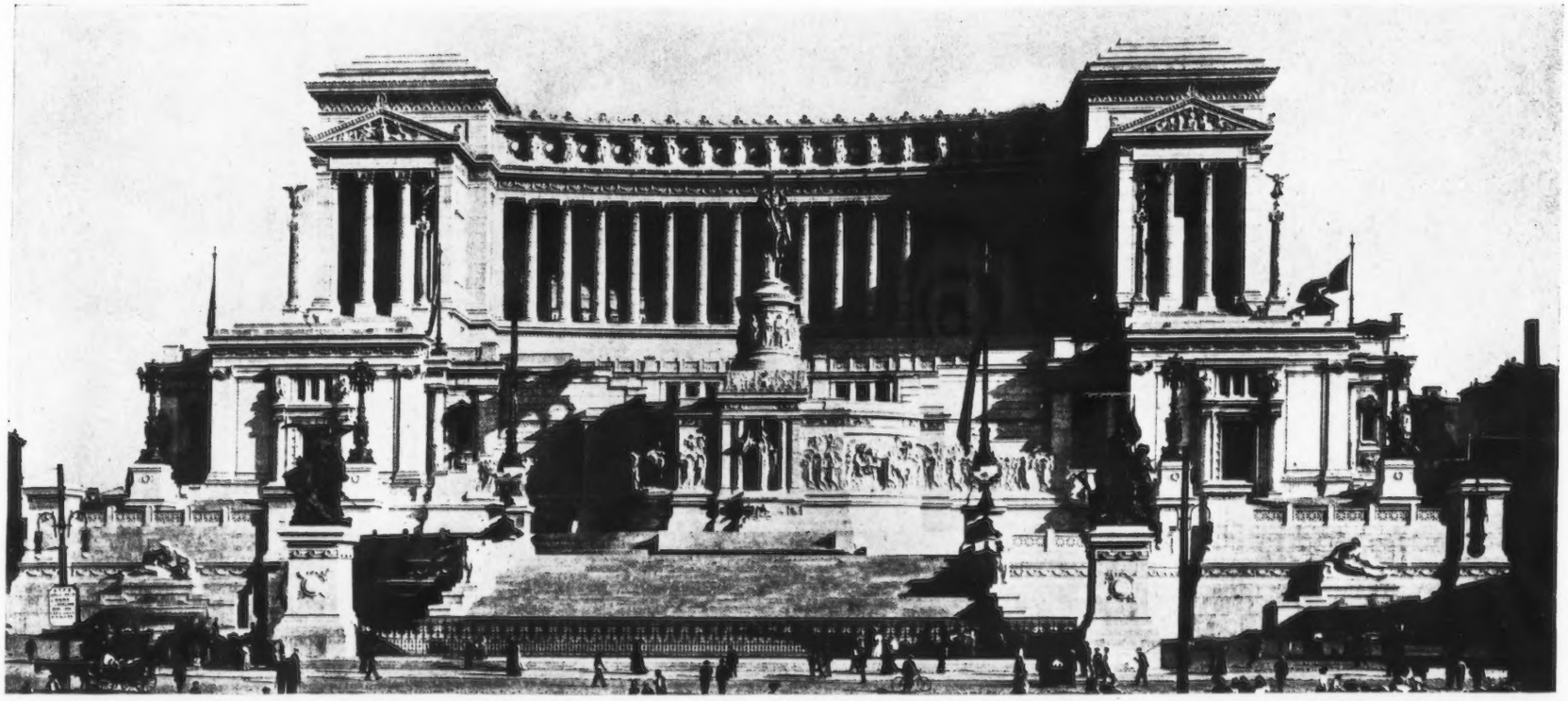
REVIEW OF OUR FOREIGN CONTEMPORARIES.

"THE ARCHITECTURAL REVIEW"
London.



House near Moscow, Russia

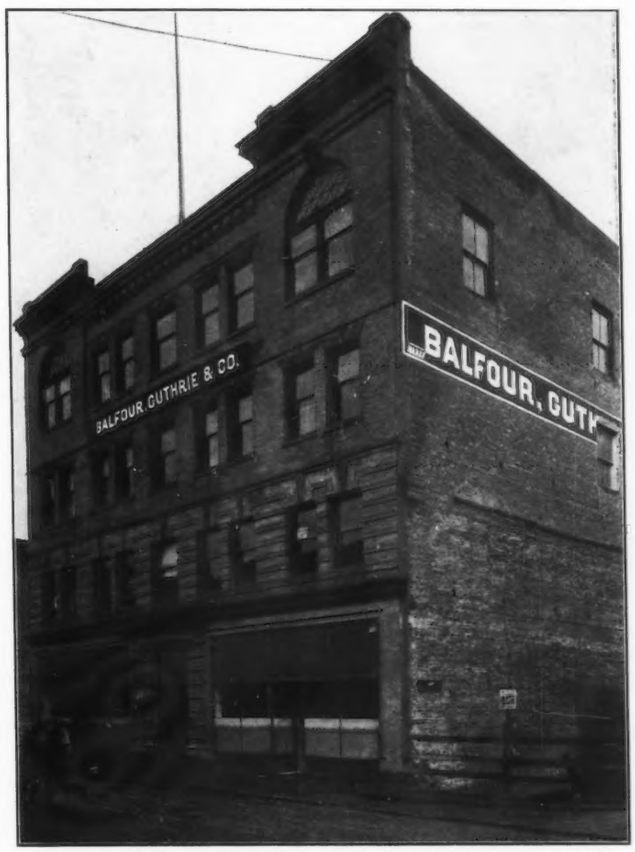
House near Surrey, England



NATIONAL MONUMENT TO VICTOR EMANUEL II, ROME
SACCONI, ARCHITECT

Satisfactory Roofing.

NOWADAYS people sometimes remark with disgust: "It is impossible to have good roofing done any more; either the tin is not good or there are no good tin-roofers." Sometimes there is ground for this dissatisfaction, but sweeping charges like these do not mend matters. The charges are not true, neither do they point the way to better roofs. What is the real trouble? Let us, as house owners, see if we are at fault. The self-examination may lead to the light. What do we do when we have a building to roof? If it is a new one, we may leave it to the architect. But frequently the architect is so afraid we will think him "owned," or at least unduly influenced by some manufacturer that he dodges the responsibility of naming materials which he knows are good and simply says, "Best materials must be used." He may be a little more definite and specify "Old Style Roofing Tin" or "40-pound Hand-Made Tin Plate," but in actual practice this generally works out very little better than the first expression.



Balfour, Guthrie & Company Building, San Francisco.

Bids are then asked for and the lowest is accepted. Having to furnish no definite material, one roofer estimates honestly on a standard and well-known brand of roofing tin regarding the quality of which there can be no question. Another puts his own definition on the word "best" and sends in a low estimate, saying to himself, "That is the 'best' I can furnish at my price." The first roofer also responds conscientiously to the architect's specifications, that the tin shall be applied in a certain way, using cleats and rosin for the soldering, that it shall be carefully painted with an approved brand of paint and the entire job done in a workmanlike manner. The other man believes he can slight the work in these or other important particulars and thus manage to make something on his low bid.

Neither the owner nor the architect can tell the durability of roofing tin by looking at the sheets. Good tin and poor tin look alike in the box. It may have a cheap coating put on by a labor-saving machine; it may have been made by the use of acid flux and may carry the requisite weight of coating and yet, in spite of many points of inferiority, it may pass muster to the eye. Moreover, the defects do not show at once and the tin roof is not likely to go wrong until after the work is accepted and the bill paid. When in a few years the roof shows signs of deterioration, we get angry and say: "It seems impossible to get honest materials and honest workmanship nowadays." We forget the lowest bidder did the work and that he was the very fellow who, by every sign which ought to appeal to common sense, was least deserving of our confidence.

We forget, moreover, that in condemning all tin because the brand we used went wrong, we are about as unreasonable as we would be if we declared that there were no good strawberries any more simply because those we bought of an irresponsible peddler proved rotten at the bottom of the box. Well, in spite of our dissatisfaction, we must have our house re-roofed; so what do we do? Send for the man who made the high bid before and talk it over with him? Some of us would; others of us would say: "Not by a jugful; he wants it all. I see advertisements where roofing can be bought ready to be put on and a guarantee goes with it that it will last five or six years or they will refund the money paid for it. They say it will last twice as long as tin roofing and is also much cheaper. I don't see how I can lose on that; I'll hire some fellow to put it on; any one can lay this kind of roofing—and I will be away ahead of the game."

It looks easy, but the fact is *we* are easy! The roof goes on. Perhaps it is tight, perhaps it isn't. It stays on possibly a few years and then leaks begin to multiply. But hold! We have a guarantee. We'll just collect on that and get back the cost of the material anyway. We try. Nothing doing. Our lawyer points out that the guarantee is very cleverly worded, and we could not recover under it. We also have just awakened to the fact that even if we could recover, the cost of the roofing was only a small part of the

(*Continued on page 196*)

Porcelain Enameled Iron and Its Relation to Sanitation.

ORIGIN OF ENAMELING. Somewhere in ages long gone by, the art of enameling on gold, silver, copper and bronze was originated and practiced, but as an art only. It has been known for many centuries in India, China, Japan, France, Germany, Italy, England and Ireland.

At one time Byzantium (Constantinople) was the center of the ornamental enameling industry, and the specimens which originated there exerted a wide influence upon European art.

Much work in enameling was done in England under Roman or Anglo-Saxon rule, but the work of the enamelers of Ireland especially excelled, their designs being of great beauty and precision.

The Middle Ages saw enameling one of the chief branches of the goldsmith's art, particularly as related to ecclesiastical ornaments. During the Renaissance period, it was revived and flourished in England and France. The seventeenth century again witnessed the decline of enameling, save in England, where such articles as card cases, candlesticks, and numerous others were enameled, until the latter part of the eighteenth century, when the art became practically a thing of the past. Within comparatively recent times, however, it has been greatly revived in England and France, where some notable specimens are to be found.

During all the years in which enameling as an art alternately flourished and declined, an occasional specimen of priceless value found its way to some museum or collection, there to be preserved as a monument to the rare skill and workmanship of an unknown and obscure artist who "builded better than he knew," for his work, then classed only as an art, was the forerunner of a development which has grown to be an important factor in modern life.

EARLY METHOD OF ENAMELING. The art of enameling, as practiced, consisted of first coating the surface of gold, silver, copper or bronze with a viscous solution of silicate of soda, after which the powdered enamel was dusted on, and the article fired to melt the enamel. As the articles enameled were, as a rule, very thin and the surface of the metal smooth, the viscous solution was used to cause the enamel to adhere to the metal before being fired, and the firing was done in order to fuse the enamel to the metal.

COMPARISON OF ANCIENT AND MODERN ENAMELING. In comparing the ancient art of enameling with the present-day commercial process there is a sameness and a difference, the result of which gives prestige to present-day enameling and removes it from the seeming experimental state to a well-defined process with an historic and solidly established past. The sameness or similarity in the ancient

"STANDARD" FIXTURES

and modern lies in the basic material used and in the application of heat to fuse the enamel to the article to which applied.

The ancient and modern differ only in formula and method of application. In the main they strike a happy medium, which, as above stated, redounds greatly in favor of present-day enameling.

The most striking similarity is that then, as now, the enamel was applied to metal. In all the time in which enameling has been known, there has been found no other material to successfully supersede metal as the basis of enamel. There is no other known gift of Mother Earth which combines the necessary requisites of strength, adaptability and durability.

Cast Iron as the Basis of Enameled Sanitary Ware. Experience and practice have demonstrated that cast iron is the superior metal to serve as the basis of enameled sanitary ware. It is not only most adaptable, least expensive and most durable, but is, from all points of view, the logical enameling basis.

The process of enameling has, from a commercial standpoint, developed to large proportions, but in this article it will be considered only in its relation to sanitary ware.

Enameling of Sanitary Ware a Development, Not a Discovery. The enameling of sanitary ware is by no means a recent discovery, as is sometimes thought, but is simply the application of very old principles to new processes and purposes, and it is a question if there is any other large commercial industry which is so little understood, not only by the public at large, but by those who daily come in contact with enamel sanitary ware in their business.

A brief description of the process of enameling sanitary ware will, therefore, enlighten and at the same time entertain.

Process of Enameling Sanitary Ware. Let it be first understood that the process of porcelain enameling a cast-iron bathtub or other plumbing fixture is one by which a coating of opaque glass is fused to the surface of the iron. After the bathtub casting has been carefully prepared, cleaned and smoothed, there is applied a wet coat of enamel while the iron is still cold. It is not completely opaque, as the succeeding coats, but is of a quality and kind which possesses a great affinity for the iron, thereby forming a strong bond between the iron and the white porcelain enamel which is later applied. After the wet or slush coat dries, the tub is placed in a specially constructed furnace and heated to the temperature required to melt the enamel and cause it to fuse with the iron surface. The degree of heat required is about 1,700 Fahrenheit.

When the first coat has been properly melted, the tub is withdrawn from the furnace and placed on a specially devised movable table, and the first coat of the white porcelain enamel powder applied evenly over the surface by means of a patented automatic sifter. Following this the article is quickly returned to the furnace and reheated until the freshly deposited enamel has melted and combined with the first coat. It is again withdrawn from the furnace and the second coat of the powdered enamel is applied in like manner. This operation is repeated *(Continued on p. 194)*

The Multiple Disc Rotary Crude Oil Burner.

ON this page and on the succeeding page are shown an X-ray view from the side and a front view of a coal-burning steam heating boiler converted and fitted for the use of the cheapest crude oil as fuel by a simple recent invention known as Johnson's Multiple Disc Rotary Crude Oil Burner, which is becoming very popular among architects and heating engineers.

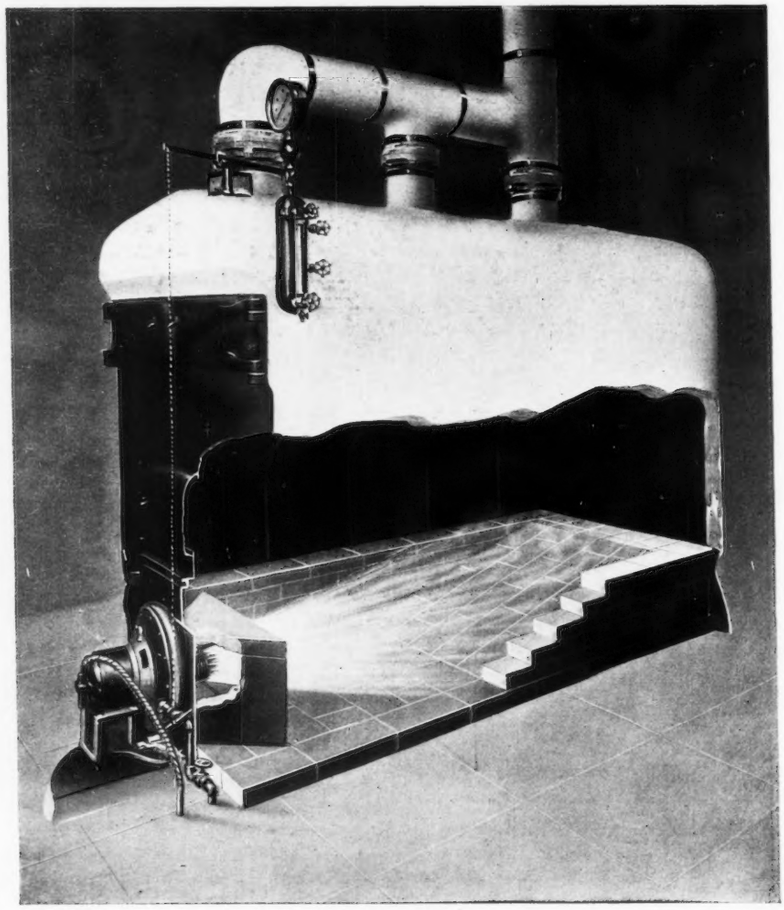
By referring to the accompanying photographic cut, it will be seen that the burner consists of a small electric motor which is direct connected to a blower and oil atomizer, the entire arrangement taking up hardly more than a square foot of space and resting on the floor just in front of the boiler, the oil atomizer entering the boiler through what was formerly the ash pit door.

To change the ordinary coal-firing boiler or furnace to an economical oil-firing arrangement, it is only necessary to remove the coal grates and set fire brick in the ash pit, as shown, to form a suitable combustion chamber.

It will be seen that with this arrangement the total heating surface of the boiler is exposed to the heat of the oil flame, the hottest part of which is at the lowest part of the boiler close to the burner, a condition that has been impossible to attain with other types of oil burners. The hot gases from the complete combustion of fuel oil passing full length of the boiler and up through the boiler passes, enter the smoke flue at the lowest possible temperature, the heat having been absorbed by the water in the boiler and converted into steam.

This burner requires very little electric current, as the entire heating plant of a large theater building in San Francisco (The Rialto Theater), containing two thousand feet of steam radiation, is being operated with one of these burners. The electric motor which pumps the heavy oil from an underground tank, atomizes the oil and furnishes the necessary air for combustion, is only one-fourth horsepower.

We are informed that the inventor, J. C. Johnson, of San Francisco, has secured fifteen patent claims for his device and is well repaid for his two years of experimenting. The burner has a wide field of usefulness, as almost every modern building on the Pacific Coast is fitting up with oil burners for heating, cooking or power purposes.



Xray View of Johnson's Multple Disc Rotary Crude Oil Burner.

S. T. Johnson Co., one of the oldest and most reliable oil-burner manufacturing firms, having factories at San Francisco and Oakland, with branches in leading Pacific Coast cities, have added the new Multiple Disc Rotary Burner to their list of satisfactory oil-burning equipments. A recent visit to the San Francisco plant of this concern finds them occupying three full floors of a fireproof building at the corner of Mission and Washburn Streets, between Ninth and Tenth Streets, with well-appointed offices and show rooms on the first floor, systematically arranged stock, tool and drafting rooms on the second floor and a well-lighted and ventilated machine shop on top floor with freight and passenger elevator and one of the most up-to-date machine shop equipments in San Francisco.

This burner is guaranteed to produce a smokeless fire due to the perfect atomization of the fuel and thorough mixture of oil and air at the burner tip.

The burner shown here is a mechanical atomizing burner designed to burn commercial fuel oil 14° to 20° Baume, without preheating the oil. The burner employs the centrifugal principle of atomization in combination with a low-pressure air blast. These burners are made up in four sizes, with or without oil pumps attached.

These burners are very simple in

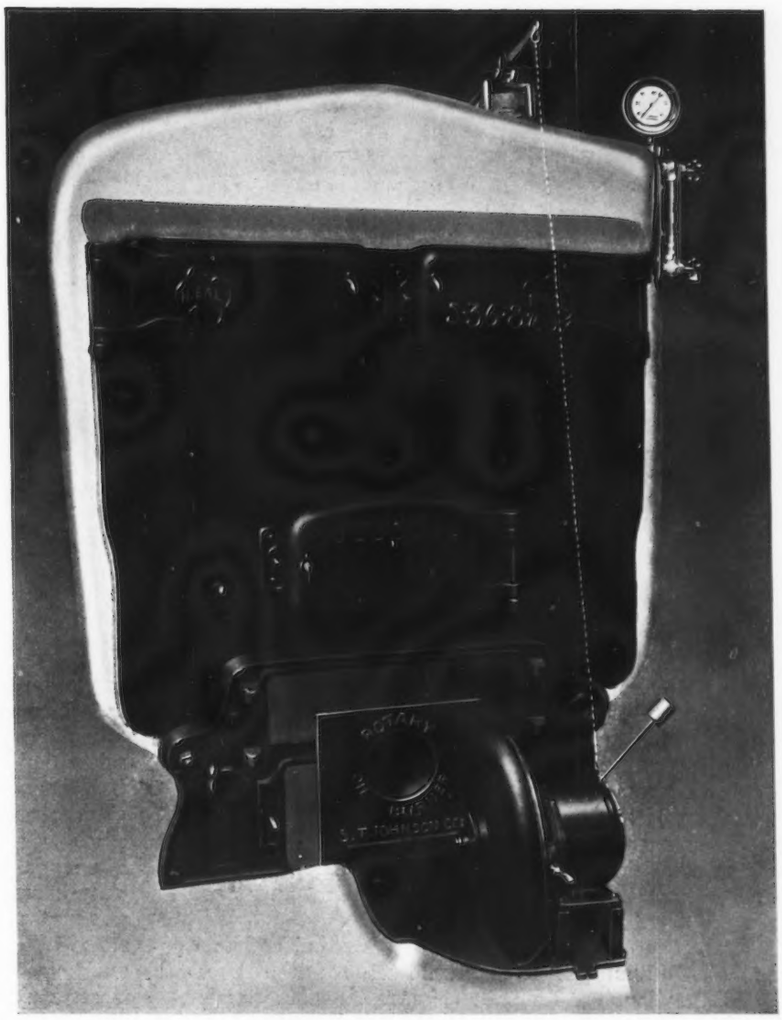
construction and unlike any other oil burner. There are only two bearings, which are polished steel journals running in long bronze bearings with ring oilers and large oil reservoirs. Motor, blower, gear case and atomizer are mounted on one shaft and bored concentrically to assure correct alignment of all parts and to simplify making adjustments.

There are no packing glands on the oil supply to atomizer, the oil supply pipe leading direct to the tip, thus reducing friction and liability of leakage.

The centrifugal atomizer is composed of a number of thin discs, the fuel oil being stretched over these discs by centrifugal force and thrown off in a finely divided spray into an annual stream of low-pressure air furnished by the blower.

The oil and air enter the combustion chamber in the form of an inflammable vapor, which ignites close to the burner, as shown in X-ray photograph, and is readily adjustable to a large or small fire, as desired, by regulation of air and oil supply to flame.

Burners can be furnished with regulating valves so that the steam pressure or the room temperature may be automatically maintained at any desired point. The burner shown here is regulated by a steam pressure regulator to maintain an even steam pressure without attention from the janitor. Front view of boiler shows how the burner can be swung out of firing position when not in use, although the entire burner arrangement is on a substantial base plate, free from the boiler.



Front View Johnson's Multiple Disc Rotary Crude Oil Burner.

Thorough atomization of the oil by means of the Multiple Disc Atomizer permits the use of less air for combustion, resulting in a soft, noiseless flame and a very high efficiency.

Already the company is working overtime filling orders for the new burner, which may be used in school buildings, apartment houses, hotels, office structures and residences. Some of the latest installations are the Eleanor Apartments on Sixteenth Street, San Francisco; two burners in the Hotel Dale, San Francisco; government transport dock No. 1, San Francisco; apartments for Joseph Menard, corner Leavenworth and Broadway; Overlook Apartments, at Sixteenth and Market Streets; Cogswell School; apartments of Mr. Brun, 1385 Clay Street, and Joseph Boccioceo Job, all in San Francisco, and Gustine School, Gustine, California.

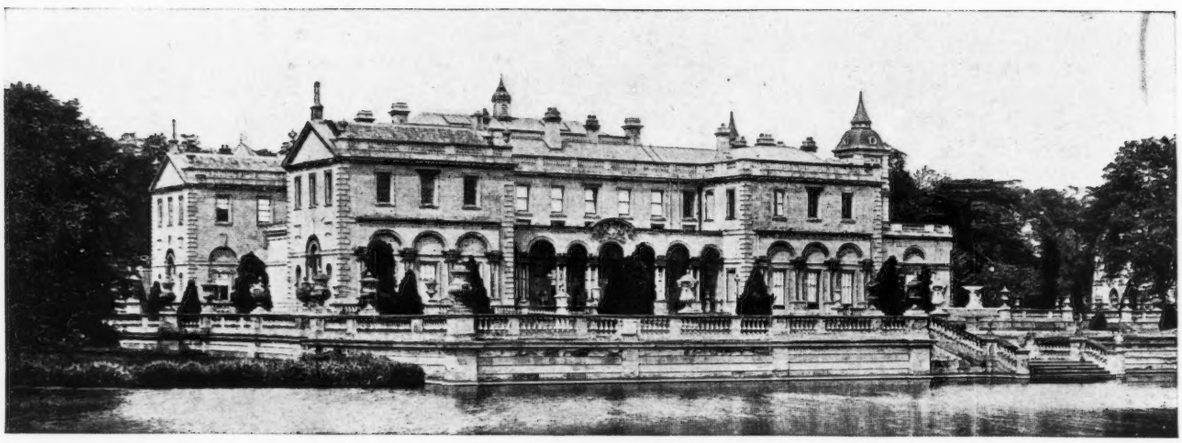
The company is also quite busy installing low-pressure-air, crude-oil-burning apparatus in the following buildings: Red Bluff High School, Lodi High School, Lincoln-Union High School, Paso Robles School, St. Francis Orphanage, Watsonville; Scottish Rite Cathedral, Sacramento; the Wasserman Building, San Francisco; Petaluma High School; Wiltshire Hotel, San Francisco; St. Dunstan Apartments, Hotel O'Farrell, Women's Athletic Club Building, Washington School, Alameda; Southern Pacific depot, Fresno; St. Germain Restaurant, San Francisco Dairy; Winters School, Winters, Cal.; Merced schools, Merced, Cal.; Lane Hospital, San Francisco; Chinese Masons, Seattle, Washington; Knights Templar, Sacramento, and many others.

The San Francisco offices and factory of the S. T. Johnson Company are at 1337 Mission Street. The Oakland offices and factory are at Grace and Lowell Streets. Agencies are maintained as follows:

Thos. Russell, Los Angeles; P. A. Costello, Seattle, Wash.; E. M. Keller, Fresno; Santa Rosa Oil and Burner Co., Santa Rosa, and many others.

THE ARCHITECT

VOL. XII. SAN FRANCISCO, SEPTEMBER, 1916 NO. 3



Editorial.

WE have been requested by Mr. Bert L. Fenner, Secretary of the American Institute of Architects, to give notice of a pamphlet entitled "Safeguarding School Children From Fire," reprinted from the proceedings of the annual 1916 meeting of the National Fire Protection Association.

The American Institute of Architects is an active member of this organization and it is fitting that leading architects of the country play an important part in the activities of its affairs.

The pamphlet has reproduced, verbatim, addresses of Mr. William B. Ittner, architect for the Board of Education, St. Louis, Mo.; Mr. C. B. J. Snyder, architect, Superintendent of School Buildings, City of New York, and Mr. S. A. Challman, Commissioner of School Buildings, Commonwealth of Minnesota, and includes a general discussion of points brought out by the addresses of members.

Mr. Ittner was introduced as the man who has done remarkable work in schoolhouse designing, not only in St. Louis, but elsewhere throughout the country; an architect of great ability, and it may not be amiss to say, a remarkable man who has not only built safe schoolhouses, but very beautiful schoolhouses.

Of decided interest to the convention were the charts and floor plans, as well as photographs, which Mr. Ittner introduced to illustrate his talk. These interesting photographs are reproduced in the pamphlet.

During the discussion, in reply to a question from the chair, it is interesting to note that Mr. Ittner stated that Architect John J. Donovan, of Oakland, California, who incidentally is represented in this issue by some of his schoolhouse work in Oakland, has perhaps built more one-story school buildings than any other architect in the country. The point raised in this connection was the desirability of the one-story schoolhouse. Mr. Ittner said that while a one-story school building is not a bad plan in such a climate as California, there might, in his opinion, be certain good reasons against such a type of building in climates such as are encountered in Rochester and Minneapolis, where they are now trying the Rochester experiment. The speaker stated that he felt that it was not necessary to limit school buildings to one story to have them entirely safe, stating that if the one-story buildings become popular, it is going to mean a cheapening of construction. In Mr. Ittner's opinion a two-story building is quite as safe and he is certain that it will be better from the schoolmaster's standpoint and from the standpoint of maintenance.

Mr. Snyder spoke on the planning of school buildings for safety. In his opening sentence he touched on the one-story idea, stating that the planning of a school building from the standpoint of safety, both to occupants and from destruction or even serious damage by fire, might be comparatively simple if we would adhere to the one-story fireproof building located on a large plat of ground. Each school room might have its own exit out of doors and it would be immaterial, as far as safety was concerned, as to how many school rooms there might be.

In consideration of the size of this pamphlet and the desirability of preserving its valuable context in complete and connected form, it is not advisable to reproduce portions of the subject matter in THE ARCHITECT; therefore we suggest to our readers that they secure a copy by writing to Franklin H. Wentworth, Secretary, 87 Milk Street, Boston. A charge of 15 cents is made for each copy.

Announcing Catalogue C

A catalogue that was almost entirely compiled by architects---whose suggestions and criticisms created the many new ideas contained in it.

The idea of index tabs was suggested by one architect who complained of the difficulty of finding anything in the ordinary catalogue.

The convenient compact size, six inches by nine, was suggested by another.

There are many other new ideas contained in Catalogue C.

We will be pleased to send you a copy.

"Pacific"

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PATIO

SOLVING ARTISTIC PROBLEMS.

(Continued from page 151)

Boston Exhibit of 1909, who was called upon by the city of Oakland for expert opinion and advice. His report has proved of the greatest material value. Dr. Hegemann published a book extensively devoted to the subject of city planning in relation to Oakland and Berkeley problems, and through pictured examples and scientific discussion of the work of other cities, as compared to the possibilities of Oakland and Berkeley, has rendered a service of inestimable value. His report will prove of interest to any architect. It treats in a thorough and authoritative manner of the essential features of the subject and is full of sound, practical advice and feasible suggestions.

PORCELAIN ENAMELED IRON.

(Continued from page 189)

until the desired number of coats of enamel have been applied.

After the last coat has been applied and melted, the tub is withdrawn from the furnace and placed in a receptacle which protects it, while cooling, from whatever impurities there may be in the atmosphere, for when a tub is removed from the furnace, it is very hot and the enamel is still in a plastic state, and dust or other impurities which fall upon it while in that state would adhere and could not be removed after cooling.

As far as enameling goes, the tub or whatever fixture it may be, is now finished and is ready to be sent to the fitting, decorating, or shipping room, as the case may be.

When finished, the enameled article really consists of an iron casting, to which a glass surface has been applied. The surface possesses all of the smoothness and non-absorbent qualities of glass, but has more strength than glass, as it has a backing of the cast iron.

PORCELAIN ENAMELED IRON THE IDEAL MATERIAL FOR SANITARY WARE. As the ideal material for sanitary purposes, porcelain enameled iron is unequaled, as it is non-absorbent and durable. The durability of properly enameled sanitary ware in use is practically without limit, and subjected to the use for which it is intended, it is literally everlasting, and only abuse—not use—can destroy it.

Under ordinary circumstances, a high-class piece of enamel ware will stand a great deal of handling.

CORNER DETAIL

Albert Steinfeld Residence, Tucson, Arizona. Trost & Trost, Architects.